

RESMED

VS III™ User Manual

English



Respiratory Care solutions
Making quality of care easy

Respiratory Care solutions
Making quality of care easy

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1 Introduction

Please read this manual carefully before using the device.

This manual is provided with the VS III™ device you have received. It does not in any way replace the clinical manual supplied to your physician or HME provider.

The VS III is designed to provide ventilation to all patients, whether or not they are ventilator-dependent. It can deliver invasive ventilation (via a tracheostomy tube, for example) or non-invasive ventilation (via a mask or mouthpiece, for example); however, the illustrations and text describe mask setups only.

1.1 Definitions

This manual contains special terms and icons that appear in the margins to draw your attention to specific and important information.



CAUTION

Explains special measures for the safe and effective use of the device.



WARNING

Alerts you to possible injury.

Note: *Is an informative or helpful note.*



: Signals an action for you to perform.

1.2 User/Owner responsibility

The owner or user of this device shall have sole responsibility and liability for any injury to persons or damage to property resulting from:

- The device being set up, operated or cleaned in a manner which does not comply with the instructions provided
- The device being set up, maintained or altered by unauthorised persons and/or in a manner which does not comply with the instructions.

1.3 Medical information

Purpose of your ventilation device

The VS III is intended to ventilate both adults and children. Patients may use it at home and/or in a hospital.

The device is used with either a single or double respiratory circuit.

Two ventilation programs can be set up by your physician. You can switch from one to the other while ventilation is running.

Warnings

- This manual must be read and understood in full before the device is used.
- The advice contained in this manual does not replace the instructions given by your prescribing physician (or HME provider), who will already be familiar with the operation of the device through the clinical manual provided.
- The device settings must be entered by competent and trained staff under the supervision of a physician.
- The device must be used with the accessories recommended by the manufacturer and by your prescribing physician. The use of inappropriate accessories is likely to affect the operation of the device.
- If you have any questions about setting up, operating or maintaining your ventilator or its accessories, contact your HME provider.
- The ventilator must be transported in its travel bag.
- In the case of externally visible faults, cease using the device.
- If the performance of the device becomes erratic, and you find it difficult to breathe or trigger a breath, contact your HME provider.
- To avoid the risk of electrocution, do not open the device casing. Repairs and internal servicing should only be performed by an authorised service agent.
- If there is interference on the electrical network, operate the ventilator on battery power.
- Your HME provider must ascertain the electromagnetic characteristics of the environment in which this ventilator will be used. In particular, your HME provider must ensure that:
 - When the ventilator is operated in proximity to other electrical devices, including cell phones, there is no interference, and the ventilator performs correctly
 - The ventilator is never placed on or under other devices

- There is an adequate distance between the ventilator and other electrical devices in your home.
- In accordance with Directive 2002/96/EC concerning waste electrical and electronic equipment, this ventilator must be sorted and disposed of separately from other types of rubbish. It must not be disposed of with ordinary municipal waste. Contact your HME provider for more information.

The above are general warnings. Other specific warnings and notes will be found throughout the text of the manual.

2 Description of the device

2.1 Components

The picture below shows the components available from your HME provider:

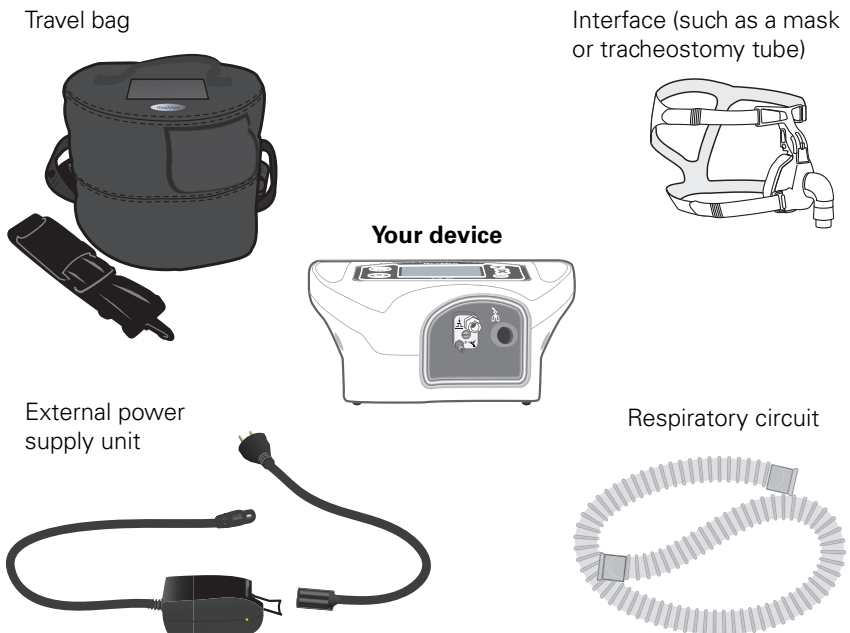


Figure 1: Components available from your HME provider

2.2 Your device

Front view

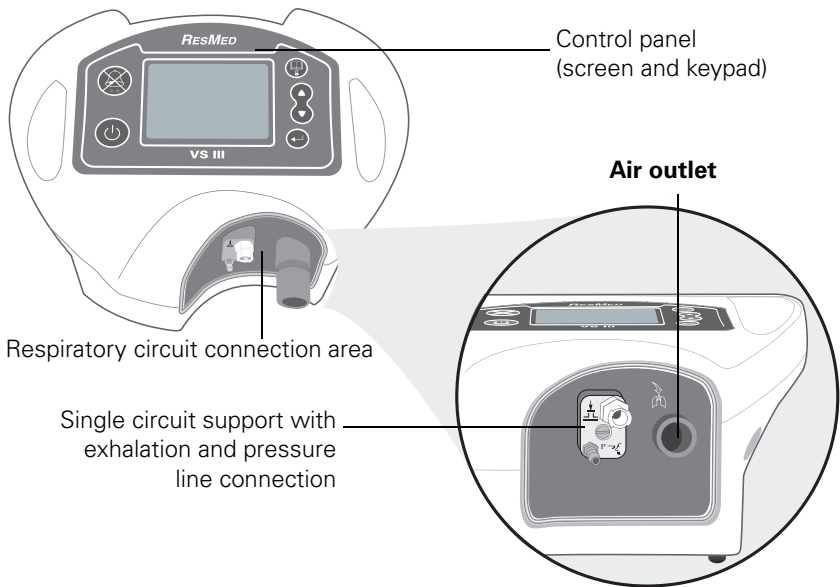


Figure 2: Front view of the device (single circuit)

There is a different type of circuit support for **double** circuits (see next figure).

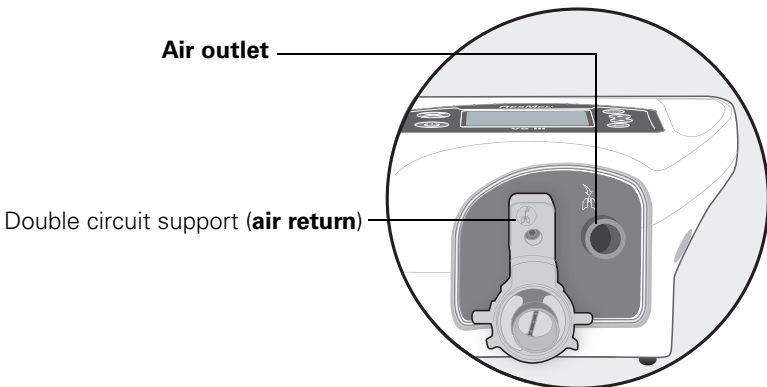


Figure 3: Detailed view of circuit support (double circuit)


Rear view

On the rear of the device, take particular note of the location of the following:

- The power supply socket
- The dust filter, which you will have to replace (see “Cleaning and maintenance” on page 17).



CAUTION

Never block the air vents. This symbol  appears on the rear of the device.

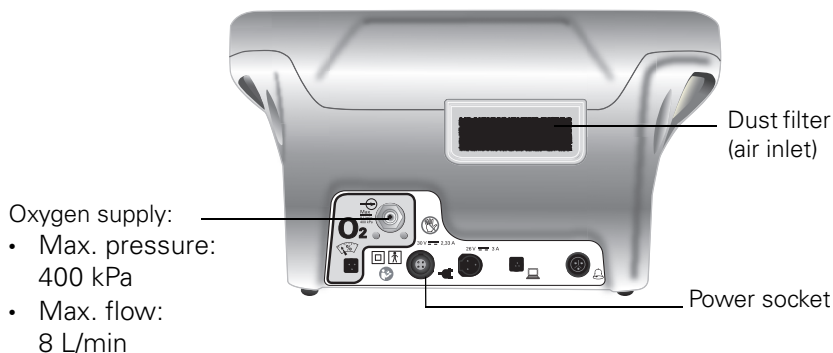


Figure 4: Rear view of the device

Device control panel

The device control panel comprises an LCD screen and a keypad.

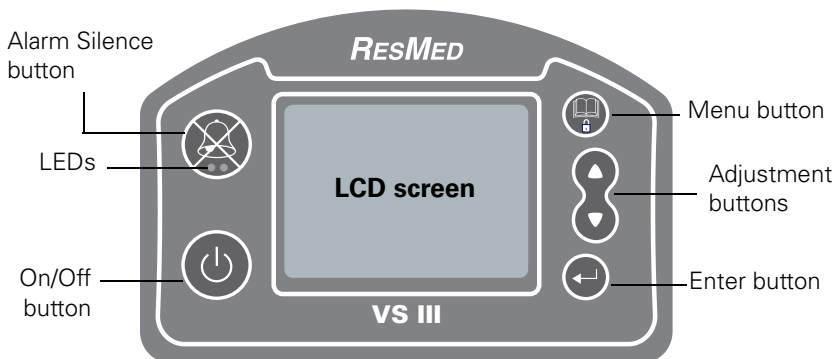







Figure 5: Detailed view of the control panel

The keypad consists of buttons and LED indicator lights.

The buttons on the keypad are listed in the table below.

Table 1: Buttons on the device control panel

Button	Function
<p>On/Off button</p> 	<p>Turns the device on.</p> <p>Stops the device by displaying an options screen. The user can choose to stop ventilation (if ventilation is being delivered) or turn off the device (if ventilation is not being delivered). Press twice to stop ventilation (press and hold the second time).</p>
<p>Alarm Silence button</p> 	<p>Silences the audible alert. After the button is pressed once, the alarm details stay on the screen. Press the button a second time to remove them.</p> <p>Either the orange or red LED will start flashing, depending on the type of alarm.</p>
<p>Menu button</p> 	<p>Opens the menu (viewing data, setting date and time) or returns to the previous screen.</p>
<p>Enter button</p> 	<p>Starts ventilation.</p> <p>Confirms the selected menu or text.</p> <p>Lets you enter/exit edit mode (for setting the date).</p>
<p>Adjustment button (Up/down arrows)</p> 	<p>Lets you navigate from one selected menu item to another: selects the previous item (up arrow) or the next item (down arrow).</p> <p>In edit mode (date setting): Increases/decreases the value of a unit. The device beeps when the maximum or minimum value is reached.</p>

Screen appearance while device operating

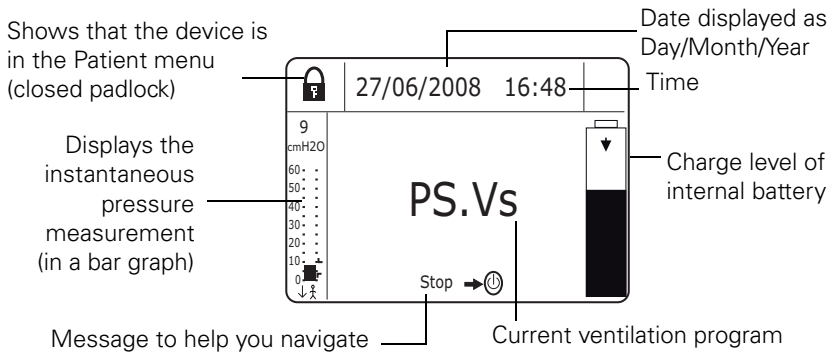


Figure 6: Appearance of the screen while the device is operating

2.3 Respiratory circuit

According to the ventilation mode prescribed by your physician, you will be using one of the following:

- A single circuit
- A single circuit with expiratory valve and with or without a pressure line
- A double circuit.

To determine the type of respiratory circuit prescribed for you and for instructions on connecting it to the device, see "Connecting the respiratory circuit" on page 9.

3 Connection procedures

The device must be placed on a flat surface. Ensure the area is dust-free, and cleared of any objects that could block the dust filter.




CAUTION

Be careful not to place the device where it could be knocked over or where someone is likely to trip over the power cord.

3.1 Connecting to a power supply

To connect the ventilator to mains power:

1. Plug the power supply connector into the rear of the ventilator (into the socket marked , see next figure) **1**.
2. Plug the power cord into the power supply box and fasten to prevent accidental disconnection **2**.
3. Connect the other end of the power cord to the mains **3**.

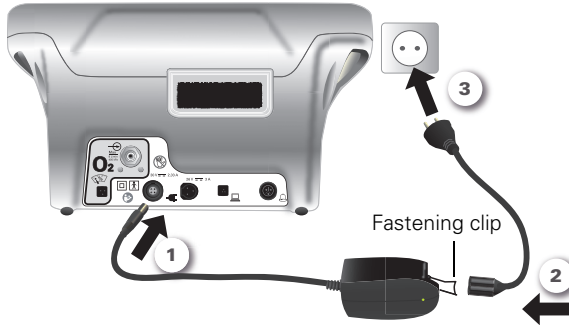


Figure 7: Connecting the device to the mains power supply

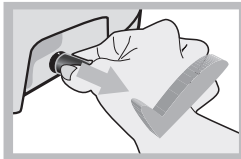
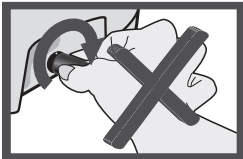
Note: Skip step 2 if using a power supply unit with a fixed power cord.

Your device is now in **standby mode**.

WARNING



The power cord is equipped with a push-pull locking connector. Gently pull the power cord to remove from the ventilator. Do not twist its outer housing.



Notes:

If your device is fitted with a rechargeable internal battery it can be used without a mains power supply for a period of **2–4 hours**, depending on your settings.

The battery recharges automatically when the device is connected to the mains supply.

3.2 Connecting the respiratory circuit



CAUTION

Only the circuit supplied by your HME provider may be used with your device. Using a different type of circuit may reduce the effectiveness of your treatment.

Option 1 – Single circuit

1. Connect one end of the corrugated tube firmly to the air outlet, as shown in the next figure **1** :

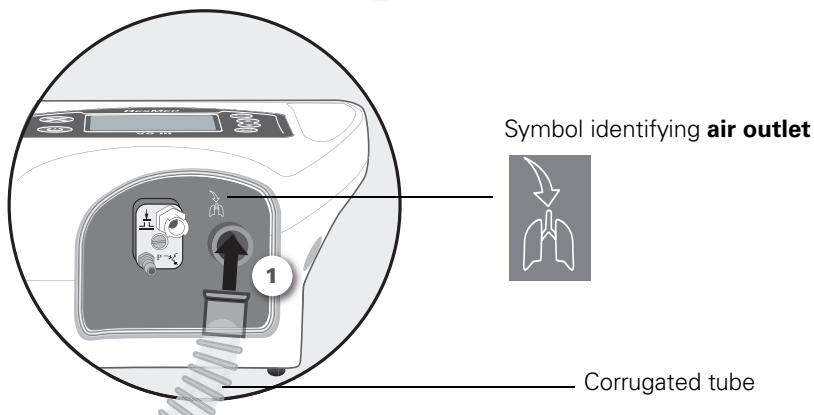


Figure 8: Connecting a single circuit to the device

Once your circuit is connected to the device, you can connect the mask to the other end of the tube.

Option 2 – Single circuit with expiratory valve and pressure line

1. Connect the air outlet firmly to one branch of the corrugated tube **1** .
2. Connect the expiratory valve tube (**the only one fitted with a white connector**) to the valve control **2** , then turn the connector slightly to the right to make the connection secure.
3. Finally, connect the other tube (**with no connector fitted**) to the pressure line **3** .

Note: If your circuit configuration does not include a pressure line, this third step will not apply.

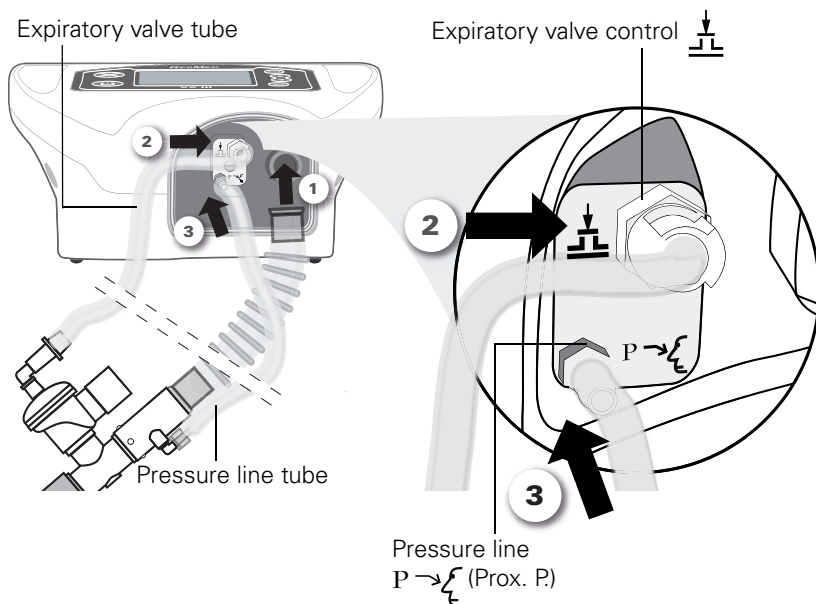


Figure 9: Connecting a single circuit with expiratory valve and pressure line

Once your circuit is connected to the device, you can connect the mask to the other end of the circuit.

Option 3 – Double circuit

1. Firmly connect one limb of the circuit to the air outlet ①.
2. Then connect the other limb ②.

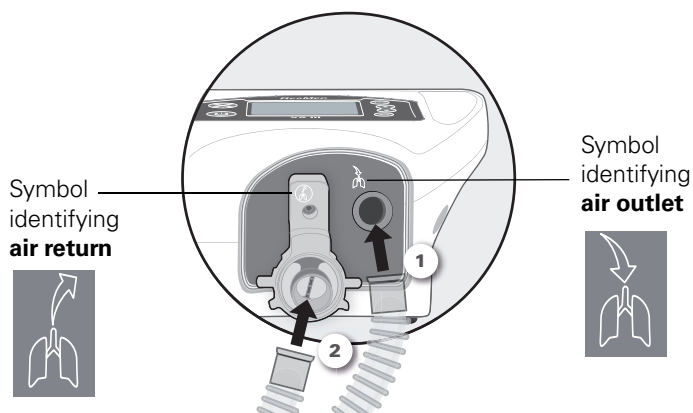


Figure 10: Connecting a double circuit

Once your circuit is connected to the device, you can connect the mask to the other end of the circuit.

Note: *These three circuit configurations may not be exactly as shown in this illustration. It may also include a humidification system, antibacterial filter or water traps. Contact your HME provider if you have any questions about connecting your respiratory circuit.*

3.3 Connecting the mask

Refer to the instructions given by your physician or HME provider.



CAUTION

It is essential to use only the mask supplied by your physician or HME provider.

3.4 Example of a fully-assembled system



Figure 11: Example of a fully-assembled system (single circuit with valve and pressure line)

If your setup does not have any accessories (oxygen accessories, external battery or remote alarm), **you can now switch your device on** (see next paragraph).

4 How to use

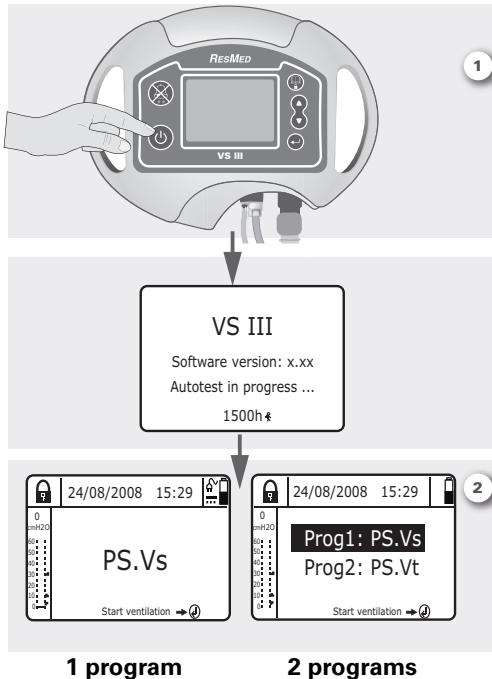
This ventilator and its accessories must be operated in a dust-free environment and kept away from direct sunlight.

The ventilator is a medical device. To ensure smooth operation, keep the ventilator out of reach of pets, and ensure children do not have unsupervised access to it.

You can:

- Turn your device on and off
- Switch from one ventilation program to the other, if your treatment includes two different programs
- Display data for each ventilation program: the settings and alarm thresholds entered by your physician, measurements for the current ventilation program, technical data, and the Event and Alarm Log.
- Set the date and time.

4.1 Starting ventilation



1 Regardless of whether the device is running on battery or mains power, press .

The device performs its self test.

2 The main screen is displayed.

- Either press to start ventilation
- Or use to select "Prog1" or "Prog2", then press to start ventilation.

Figure 12: Turning the device on: self test performed and ventilation start screen displayed with one program (lower left screen) or two programs (lower right screen)

4.2 Switching programs (during ventilation)

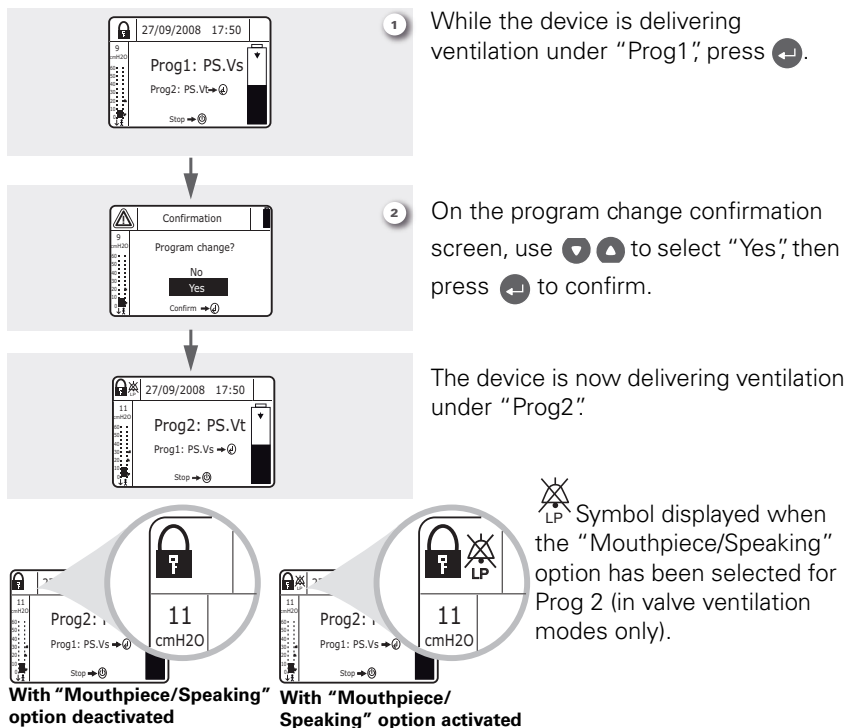


Figure 13: Switching programs during ventilation

Note: Once the "Mouthpiece/Speaking" option is activated by your physician, you are able to speak without triggering the low pressure alarm during expiration.

Ensure that a caregiver is able to supervise the use of the device while this option is activated.

4.3 Viewing data (during ventilation)

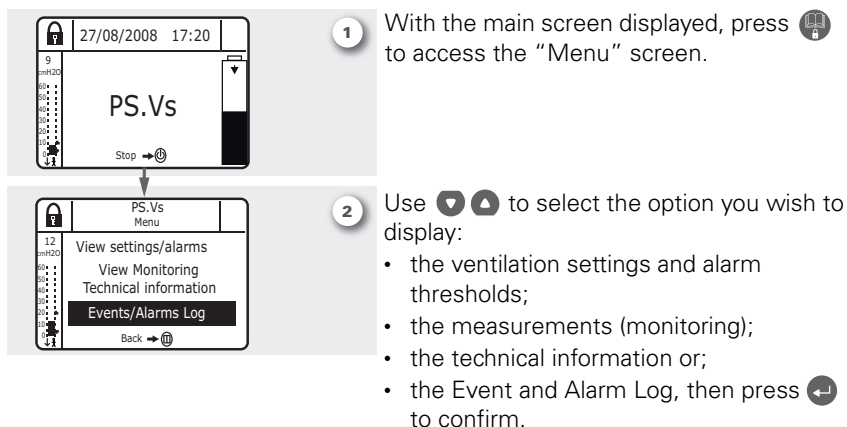
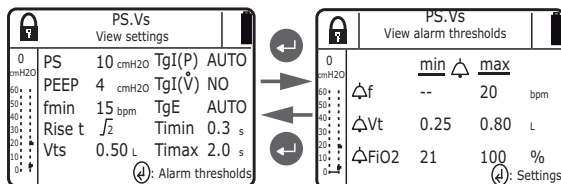


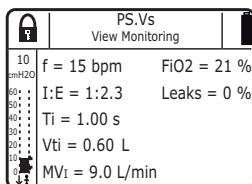
Figure 14: Viewing data

The following figure shows the screens for each option:

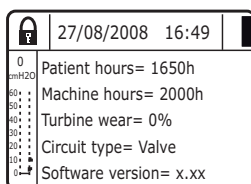
Ventilation settings and alarm thresholds:



Measurements:



Technical information:



Event and Alarm Log:

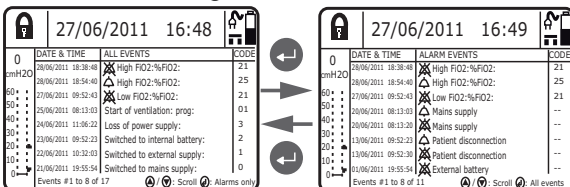

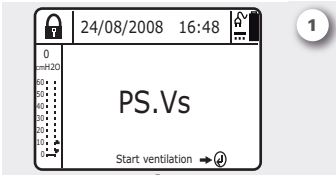





Figure 15: Information screens (examples)

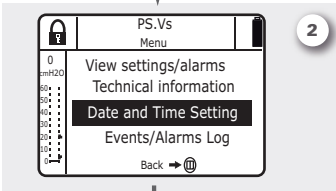
For any further information, please contact your HME provider.

4.4 Setting the date and time (while ventilation is stopped)

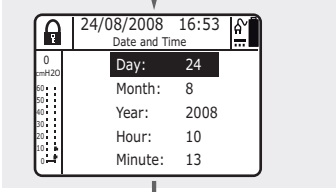
1 Press  to access the "Menu" screen.







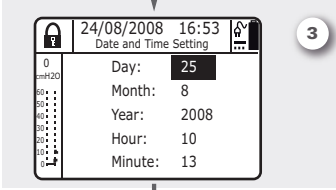
2 Use   to select "Date and Time Setting", then press .



The "Day", "Month", "Year", "Hour" and "Minute" fields appear. The "Day" field is selected by default.



3 Press  to edit the "Day" field. The highlighted area reduces in size to cover only the editable field and the words "Set Date and Time" are displayed in the message area. Use   to change the day of the month. Press  to confirm the change.



4 The highlighted area returns to its original size and moves to the next field.

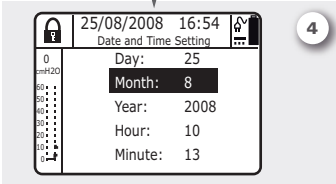



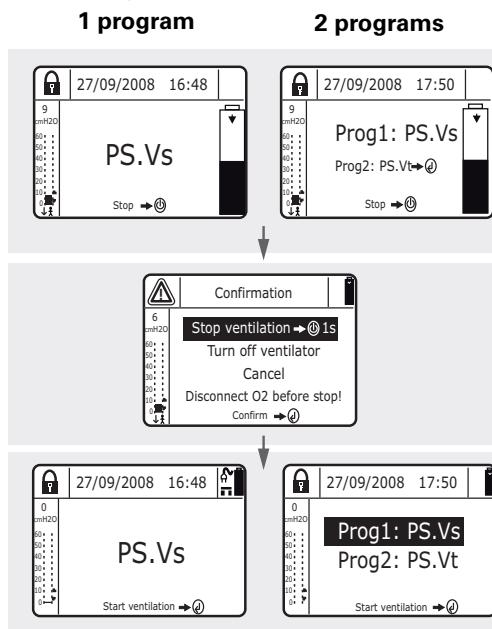
Figure 16: Setting the date and time


Repeat steps 3 and 4 for the "Month", "Year", "Hour" and "Minute" fields.



Press  twice to return to the main screen.

4.5 Turning off the device

Stopping ventilation




Press .

Press  again and hold for 1 second, or confirm "Stop ventilation" by pressing . The message "Wait a few moments" is displayed.

The main screen displays:

- Either the current program (if only one program is configured)
- Or the currently selected program (if two programs are configured).

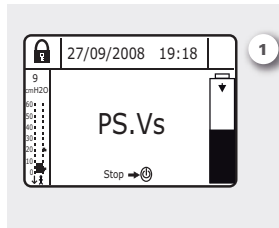
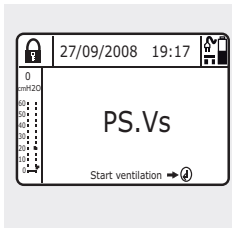
Figure 17: Stopping ventilation

Note: When stopping ventilation, the device will beep continuously. Press  to confirm.

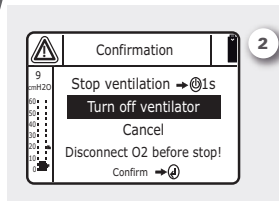
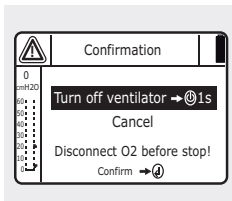
Shutting down the device

While ventilation is stopped

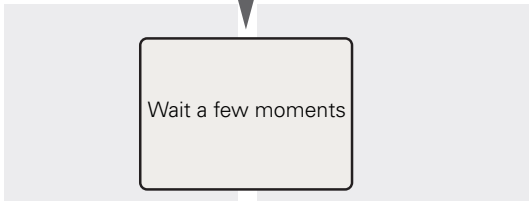
During ventilation



Press .



Press again and hold for 1 second (left-hand screen), or confirm “Turn off ventilator” by pressing (right-hand screen). The alarm will sound.



The message “Wait a few moments” is displayed (you have to wait for the circuit to empty), then the device will beep. Press .

Figure 18: Shutting down the device

5 Cleaning and maintenance

We recommend that you maintain your device and accessories regularly.



CAUTION

If you use any of the following accessories:

- Mask
- Humidifier
- Antibacterial filter
- Water traps,







follow the instructions provided in the manual for your accessory, and the instructions of your physician or HME provider.



CAUTION

Do not use bleach-, chlorine-, alcohol-, or aromatic-based solutions (including all scented oils), or moisturising or antibacterial soaps. These solutions may cause hardening and reduce the life of the plastic components.

Table 2: Frequency of maintenance

Component	Frequency	Maintenance
Respiratory circuit 	Follow specific recommendations from your HME provider.	
Mask 	Before first use, then weekly.	Clean the mask in warm soapy water, rinse well and dry thoroughly.
Mask headgear 	Monthly.	Wash the headgear in warm soapy water.
Exterior of the device 	Monthly.	Wipe with a damp cloth and soapy water. <div>CAUTION Keep the device away from water.</div>
Dust filter 	Check once a month that it is in good condition and replace if necessary. Replace at least once every six months.	Pull the filter out of its housing and replace with a new filter.



WARNING

To avoid any risk of electric shock, never immerse the device or power cord in water. Always unplug the device before cleaning and be sure that it is dry before plugging it back in.




CAUTION

Do not attempt to open the device casing. Repairs and internal servicing should only be performed by an approved technician.

6 Troubleshooting






Alarms will alert you to any problems with your device. The instructions in this section will help you to identify the cause of the problem. If the fault persists or cannot be identified, do not try to open the device. Instead, **contact your HME provider.**

If an alarm is triggered you will notice the following:

- An audible signal will sound
- The  symbol will appear at the top of the screen, followed by the name of the alarm
- The red or orange LED will flash.

If you know which alarm has been triggered, consult the following tables, otherwise contact your HME provider.

Table 3: Ventilation alarms (not an exhaustive list)

Alarm name	Cause	Solution
 Mains Disconnect	The mains power cord has been disconnected.	Reconnect the mains power cord.
 Ext. Battery Lost	The external battery cord has been disconnected. This alarm can be triggered only if an external battery is connected to your device.	Reconnect the external battery cord.
 Low battery	The charge level of the internal battery is low (less than 20%).	Connect the device to the mains power supply without delay to recharge the internal battery.
 Empty Battery	The internal battery is flat (charge level less than 5%).	Connect the device to the mains power supply immediately.
 Connect Circuit	A component in your patient circuit is wrongly connected or is disconnected.	Reconnect the patient circuit.











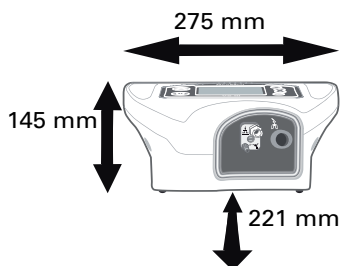
Alarm name	Cause	Solution
 Change Circuit	The connected circuit is different from the one for which the device is configured.	Connect the correct circuit.
 Prox. P. Lost	The pressure line is disconnected (see Figure 9 on page 10).	Reconnect the pressure line.
 Low Pressure	This alarm also indicates a wrongly connected or disconnected patient circuit.	Reconnect the patient circuit.
 High Pressure	A component in your respiratory circuit is blocked.	Clean, empty or replace the components of your respiratory circuit. Contact your HME provider if this alarm persists.
 Low Vti or Low Vte	Low inspired volume or low expired volume.	Check your circuit.
 High Vti	High inspired volume.	Check your circuit and make sure there are no leaks.

Table 4: Technical alarms (not an exhaustive list)

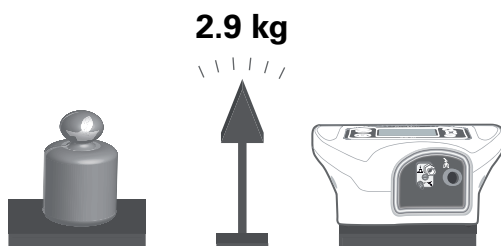
Alarm name	Cause	Solution
 Tech [n]	Technical alarm. The alarm number indicates the type of incident.	Contact your HME provider and give the number of the alarm.
 Turbine	Alarm indicating that the turbine has stopped.	Contact your HME provider.
 Temp Out Of Range	The temperature of the internal battery is too high or too low.	Contact your HME provider.
 Check Date&Time	The charge level of the backup battery (internal clock memory) is low.	Connect the device to the mains power supply without delay and check the date and time.

7 Technical specifications

7.1 Dimensions



7.2 Weight (without external power supply)



7.3 Power supply

Mains power

Input: 100–240 V AC, 50/60 Hz, Max. 1.8 A.

Output: 30 V DC; 2.33 A.



CAUTION

Use only the power supply unit provided with the device.

Internal battery

NiMH 24 V, 2.1 Ah.

Internal battery life

2–4 hours, depending on settings.

External battery

26 V DC \pm 10, Max. 3 A.

External battery life (ResMed Power Station)

At least four times longer than the life of the internal battery (when the internal battery is fully charged).

7.4 Transport

Storage and transport temperature

-10 to +50°C.

Relative humidity

10 to 90%.



CAUTION

This device is fragile and must be kept dry. It must be transported in its carry bag together with its accessories.

Normal use

- Operating temperature: +5°C to +40°C.
- Ambient relative humidity: 10%–95%.
- Atmospheric pressure: 600–1100 hPa.

Extraordinary use

- Operating temperature: -5°C to +40°C.

Note: Between -5°C and +5°C, it takes the device **30 minutes** to reach optimal performance. To obtain optimal performance immediately in this temperature range, operate the device at ambient temperature prior to use.

8 Appendix















Travelling with your device

For long journeys it is advisable to carry your device in its travel bag, with the following accessories:

- The mains power cord and the external power supply
- The circuit and its accessories
- The mask
- The oxygen coupling (if you use oxygen).

If you intend to travel by air with the device, ask your HME provider about the required formalities.

9 Symbols displayed on the screen

Symbol	Meaning
	External power supply (mains)
	External battery
	Internal battery (the device is detecting whether the battery is charging or discharging)
	Up arrow indicates the internal battery is charging (coloured black or white depending on the charge level)
	Down arrow indicates the internal battery is discharging
	Indicates the Patient menu
	Indicates that the LP expi alarm was deactivated following the selection of the "Mouthpiece/ Speaking" option.
1500h 	Patient hours on the welcome screen
	Signals a confirmation or reset screen
	Bar graph with pressure bar (cmH ₂ O)
 <Alarm>	Alarm symbol followed by the name of the alarm
	Menu button
	Enter button
	On/Off button

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Making quality of care easy

NOT014930-4 2012-01

VS III

USER

ENG

HME provider contact details



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